HARDWARE

80186-Based Central Processor Modules

- ▨ **Two models:**
  CP-001/8: 8 MHz Intel 80186 processor with 256 KB RAM
  CP-001/9: 8 MHz Intel 80186 processor with 512 KB RAM

- ◼ **All systems include RAM with Parity Error Detection**

- ◼ **User installable RAM expansion cartridges available in 256 KB (for CP-001/8) and 512 KB (for CP-001/9) increments**

- ◼ **Up to 1 MB RAM per workstation**

- ◼ **Contains video controller for character mode video display**

- ◼ **Provides I/O support for 2 RS-232-C ports, parallel printer port, and RS-422 operations at speeds up to 1.8 million bits per second**

- ◼ **Visinostics software package provides visual diagnostic capability to exercise processor, memory, I/O, and video features**

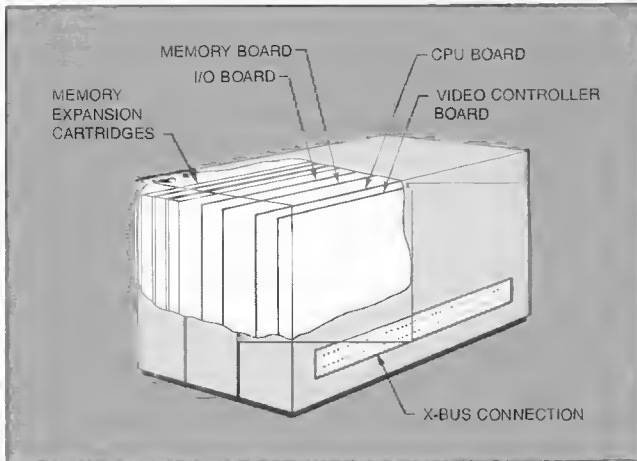- ◼ **Mass Storage, Graphics, Voice, Communications, and custom modules are easily added to the processor module**

The processor module provides the core of the expandable NGEN® workstation. It includes an Intel 80186 microprocessor and supporting logic, the system RAM, input/output devices for external communications, and logic to drive the video display and keyboard. Each module contains four standard printed circuit assemblies, and has room to accommodate optional RAM expansion cartridges, up to a maximum of 1 MB. I/O support includes two RS-232-C ports, an RS-422 channel and a parallel printer port with a Centronics-compatible interface.

Two processor modules are available. Both share the same functional characteristics, but vary in memory architecture. Both use an Intel iAPX 80186 VLSI microprocessor, operating at 8 MHz. Both offer similar performance; in computational tasks, they are two to three times as fast as the IBM® Personal Computer and Personal Computer/XT. The CP-001/8 uses 64K RAMs and has a base memory configuration of 256 KB. The CP-001/9 uses 256K RAMs, and includes a base memory of 512 KB.

The video circuitry contains a Motorola 6845 character mapped video controller, which drives the display of 29 lines by 80 characters. A 256 character font RAM may be loaded by user applications software. The standard character set contains the entire print ASCII character set, graphics characters, common symbols and selected foreign alphabetic characters. The character set is stored in a high-speed RAM array, known as "Font RAM", which contains 4096 10-bit entries. The character set may be easily changed under software control by loading another character set into the Font RAM. This feature provides unlimited flexibility in displayable character sets. The video hardware allows up to six attributes to be set on a per-character basis: underline, blink, reverse video, bold, half-bright, and struck-through.

The I/O hardware provides logic and connectors to support the standard I/O capabilities of the workstation. This includes two RS-232-C ports, with full modem control, which may be operated in both synchronous and asynchronous modes at speeds up to 19,200 bps; an RS-422 port for cluster operations at speeds up to 1.8 million bits per second; a parallel printer interface, set up for Centronics-compatible printers, and the connector for the video/keyboard cable going to the monitor assembly.

All external cables enter the processor cabinet through a small opening, and are easily attached to connectors
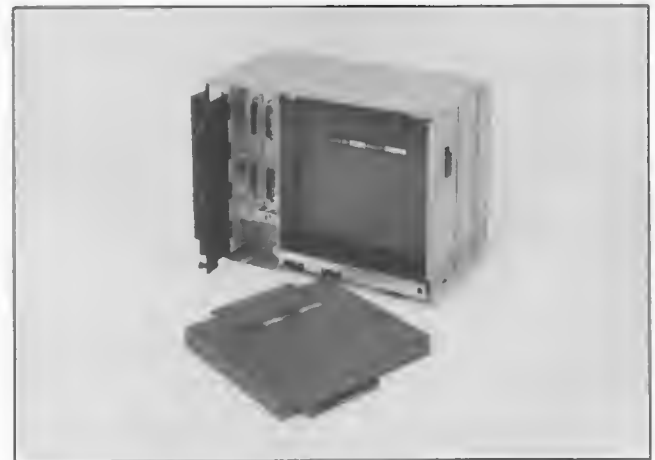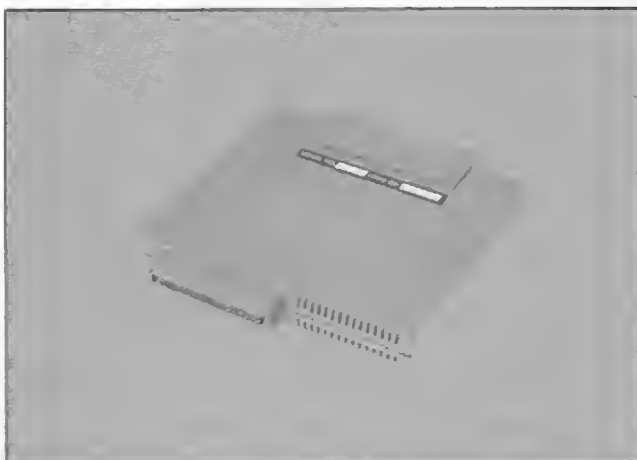
inside the module. The left side panel of the module is easily removed, providing access to these connectors. This allows the unit to have a finished appearance on all sides, with no visible cable connectors.

The basic workstation contains 256 KB of RAM storage (model CP-001/8) or 512 KB of RAM (model CP-001/9) with byte parity error detection, and the logic to control and refresh all system memory, including any optional RAM expansion cartridges.

The optional RAM expansion cartridges fit inside the processor module. Each cartridge is inserted in the cavity, and locked in place by the cartridge handle. The CP-001/8 and CP-001/9 support up to 1024 KB of system RAM. This is achieved using three XM-001 (256 KB) cartridges (for the CP-001/8) or one XM-002 (512 KB) cartridge (for the CP-001/9).

The NGEN processor module packaging sets new standards for system modularity. The CPU, video logic and base memory are contained in an internal compartment, and are not visible to end-users. A low-speed fan draws air into the bottom-front of the module, and expels it out of the top-rear of the cabinet. Like all NGEN modules, a female X-Bus connector and latch mechanism is located on the right side panel of the Processor module, and allows for the easy installation of expansion modules.

SPECIFICATIONS

Module Power Requirements

Module	Power Code
CP-001/8	4
CP-001/9	4
XM-001	0
XM-002	0

Microprocessor Specifications

Module	Microprocessor	Clock Rate
CP-001/8	80186	8 MHz
CP-001/9	80186	8 MHz

Storage Capacity

Module	Base RAM (KB)	Maximum RAM (KB)	ROM (KB)
CP-001/8	256	1024	8
CP-001/9	512	1024	8
XM-001	256	—	—
XM-002	512	—	—

Serial I/O Rates

External Clock:
 RS-232-C: 110 bps to 19,200 bps
Internal Clock:
 RS-232-C: 50 bps to 19,200 bps
 RS-422: 100 bps to 1.8 Million bps

Parallel I/O Rate

Programmed I/O: 9600 char/sec (typical)

PHYSICAL

Height: 8 in. (203.2 mm)
Width: 5.75 in. (146.1 mm)
Length: 12 in. (304.8 mm)
Weight: 10 lbs. (4.54 kg)

ENVIRONMENTAL, SAFETY, AND ERGONOMIC

Safety

Meets UL 478 (EDP) and 114 (Office Equipment)
Meets CSA 154 (EDP) and 143 (Office Equipment)
Meets VDE 0806 (Office Equipment)
Meets BSI 5850 (Office Equipment)

Emissions

Meets VDE 0871 Level A (Emissions)
Meets FCC Part 15, Sub-part J for Class A Emissions

ESD

5,000 Volts: No observable effect
12,500 Volts: Errors corrected via Software Intervention
17,500 Volts: Errors corrected via Operator Intervention
25,000 Volts: No permanent damage

Altitude

Operating: 15,000 feet ASL
Non-Operating: 25,000 feet ASL

Acoustic Noise Level

NR 30 dBA

Temperature/Humidity

Operating: 0°C to 40°C
 5% to 95%
Non-Operating: −40°C to 75°C
 90% at 65°C for 12 hours

Convergent Technologies®

2700 N. First Street, San Jose, CA 95134
(408) 434-2848